

NATIONAL IMAGINATION COMPUTER CLUB

* 515 Shadylane-Barrington-111nmis-60010

JULY/AUGUST 1982

We will start this issue off with an apology for the last issue which was barely readable. We also receive an issue in the mail to see how it turned out, we have to look a little harder, but it is readable.

ANSWERS/TIPS FROM OTHER CLUB MEMBERS

FROM R. L. RECKER OF CALIFORNIA

This "tip" will help to answer many of the questions we have been receiving about expansion. The following is exactly as Mr. Recker wrote it, and we hope he receives a high response.

"The up-grade consists of 48K users memory, connections for the audio section (to eliminate hum from the speaker), on board "basic interpreter" ROMS switch selectable to the level of basic installed. The conversion is easy to install. The modification to the MP-1000 is very simple and can be removed by simply plugging in a few "chips". The second part of the conversion is a new board for the MPA-10. As far as software, I will convert all existing software I have to run on the "new memory mapped system". The cost of the converted software will be as low as possible. The cost of the game cartridges will be a little higher due to the cost of the ROM'S compared to a tape or disk. Programs will be available on tape, disk and ROM.

The new system will be compatible with the APF "BUILDING BLOCK" and it's interfaces (except the memory module, of course). So, you can use your existing peripherals without any modifications what so ever! The new system software will include some new commands - CLE (CLEAR CRT) - PACK (PACKING THE DISK) and EXIT (EXIT FROM A LOAD OR CGAME), are included at this time (more may be added). After this is completed a level II expanded basic is planned. It will include string functions, expanded math (possibly floating point), 256 variables, up-graded file manager, automatic loading of "front picture" when saving.

All engineering has been completed (software and hardware). I'm waiting for the new board to be manufactured (proto type). If no "bugs" are found, the upgrade will be made available in kit form. At this time I can't give a set price for the up-grade. "Volume pricing" will be the determining factor. The cost is less if the boards are ordered in large quantities. So, if anyone is interested in this up-grade please let me know so, a cost can be established. I will answer all letters with a SASE as soon as possible.

I'm really excited about the "Level II computer". It will bring the APF up to the level of the ATARI, APPLE, IBM-80, ETC. at a reasonable price. There are so many good programs on the market that require at least 32K of memory that can never be programmed into our computer at this point. With the conversion you could play chess, play elaborate video games, be able to handle small business programs. I've tried to program my APF for data management just to find out I could not complete the program the way I wanted, because of the limited memory and limited amount of variables available. In closing, if anyone has any ideas of what the expanded basic should include, or is interested in the up-grade, please let me know."

Send SASE to:

R. L. RECKER
10524 MILLERON AVE.
ROSEH GATE, CA 90080

FROM VICTOR TREFFRY OF CANADA

As an addition to Mr. Hines suggestion to add a Radio Shack switch to the speaker circuit, he found a nice place to mount it on the metal plate in the rear where the A.C. plug goes in. It's quite nicely out of site. Also, if anyone is having trouble with repeating keys, they can switch them with the two unused keyswitches.

Mr. Treffry asks the following question -

"How do you remove herringbones on the t.v. screen"

To Mr. BERRY J. ORR OF CALIFORNIA

No, you cannot use other computer cartridges on the IM-1. Reason, as non-technical as possible, the computers use of memory locations is different. The input/output information differs, therefore plugging in a cartridge, even if it would physically match up, in all likelihood would not match the I/O routines required by that machine.

ITEMS WANTED

WORD PROCESSING - MR. BERGSTEDT would like information on availability of word processing programs for the APF 270 with attachments. Willing to compensate. Please call:

Bob or Ken Berstedt (219) 365-5956
9543 US 41
St. John, IN 46373

CONTACT OTHER CLUBMEMBERS

Berry Orr (805) 985-4696
2515 Greencastle Court
Oxnard, CA 93030

Vincent Treffy (other Canadian members)
P.O. Box 377
Eastern Passage, N.S. Canada B01 1L0

George E. Taylor
209 Lakeshore Dr.
Muscle Shoals, AL 35660

Roger Price
1015 River Drive
Marion, IN 46952

PROGRAMS FROM OTHER CLUB MEMBERS

RABING ROBOTS

.....from JIM BREWER OF ARKANSAS

```
1 DIM D$(1)
7 DIM R(20),F(20)
10 POKE 24576,54: POKE 40994,27
30 YS=USR0: POKE 544,0: POKE 548,0
100 CALL 17046: PRINT "RABING ROBOTS": PRINT : PRINT : PRINT
101 PRINT "THE OBJECT OF THIS GAME IS TO DESTROY ALL OF THE ROBOTS"
102 PRINT "WITHOUT GETTING CAUGHT BY A ROBOT OR RUNNING INTO A MINE."
103 PRINT "THE MACHINE WILL GET TIRED OF WAITING IF YOU ARE TOO SLOW"
104 PRINT "YOU CAN GO OFF THE SCREEN AT THE TOP, BOTTOM, AND SIDES, BUT WAIT
  W OUT FOR HIDDEN MINES"
110 PRINT "ENTER SKILL LEVEL 1 TO 5 1 IS TougH!"
111 FOR I=1 TO 16: POKE 480+ INT (32* RND (1)),128: POKE 1624+ INT (32* RND (1)
  ),128: NEXT I
112 INPUT SC: CALL 17046
113 IF SC=1 THEN 126
114 IF SC=2 THEN 124
115 IF SC=3 THEN 122
116 IF SC=4 THEN 120
117 M=40:B=5: GOTO 170
120 M=40:B=10: GOTO 170
122 M=40:B=15: GOTO 170
124 M=40:B=20: GOTO 170
126 M=35:B=20: GOTO 170
170 PRINT "YOU ARE BEING CHASED BY RABING ROBOTS. USE THE RIGHT JOY STICK TO S
  O UP=8, LEFT=4, RIGHT=6, "
171 PRINT " DOWN=2 AND DIAGONALLY=1,3,7,9. THE 5 IS MAGIC AND PUTS YOU INTO
  HYPERSPACE WHERE NOBODY "
172 PRINT "KNOWS WHERE YOU COME OUT..."
173 PRINT "THE ROBOTS=R, THE MINES=M AND YOU=Y"
180 SC=512:TD=50: GOSUB 2100
210 PRINT "PRESS ANY KEY TO PLAY"
211 D$= KEY$ (1): IF D$="" THEN 211
225 CALL 17046
240 POKE 40960,778/256: POKE 40961,778- INT (778/256)*256: PRINT "HERE THEY COM
  E"
245 TD=30: GOSUB 2100
295 CALL 17046
310 FOR I=1 TO M:MF= INT (512* RND (1)): POKE SC+MF,13: NEXT I
350 FOR I=1 TO B
```

Raging Robots (continued)

```

360 R(1)=INT(15124*AND(211412):IF R(1)=271 THEN 160
370 POKE SC+R(1),10:P(1)=1:JB X1 I
400 YU=271
420 POKE SC+YU,25
500 IF B=0 THEN PRINT "YOU WIN"AYOS+1:MUSIC "12,40,50,40,50,40,40":GOTO 920
505 POKE 40960,2:POKE 40961,0:PRINT "YOUR TURN":PRINT 1
510 GOSUB 2500:D=D+100
511 IF D<10144 THEN 650
515 IF D=500000000 THEN YN=INT(15124*AND(203))
516 IF D=0 THEN 500
520 IF D=1000000000 THEN YN=YU+31
525 IF D=2000000000 THEN YN=YU+32
530 IF D=3000000000 THEN YN=YU+33
535 IF D=4000000000 THEN YN=YU+1
540 IF D=5000000000 THEN YN=YU+1
550 IF D=7000000000 THEN YN=YU-27
560 IF D=8000000000 THEN YN=YU-31
570 IF D=9000000000 THEN YN=YU-31
600 IF FEEL(1,LY+YN)-128 THEN LC=YU:GL=10:GOTO 9200
605 IF YN=0 THEN YN=YN+512
610 IF YN=512 THEN YN=YN-512
620 POKE SC+YN,25:POKE SC+YU,128:YU=YN
650 FOR I=1 TO 20
660 IF P(I)=0 THEN 900
665 X1=P(1)+32:INT(15124/32):Y1=YU-32:INT(AYU/32):X2=X1
670 Y1=INT(10144/32):Y2=INT((YU-1)/32)+Y2-Y1
680 J1=R(1)+800:X1=D:FEEL(SC+J1):POKE SC+R(1),128
690 POKE SC+J1,10:R(1)=J1:J2=R(1)+32:SON(AYU/32):FEEL(SC+J2)
725 IF X=0 THEN 845
830 IF D1=15 THEN LC=SC+YU:GOTO 9200
840 IF D1=17 THEN LC=SC+J1:P(1)=0:B=B-1:MUSIC "/1":GOSUB 9000
841 IF D1=18 THEN LC=SC+J1:P(1)=0:B=B-1:MUSIC "/2":GOSUB 9000
842 IF D1=19 THEN POKE LC,10
845 IF X<10 THEN 900
846 IF Y=0 THEN 900
850 POKE SC+J2,10:POKE SC+R(1),128:R(1)=J2
860 IF D2=25 THEN LC=SC+YU:GOTO 9200
870 IF D2=13 THEN LC=SC+J2:P(1)=0:B=B-1:MUSIC "/3":GOSUB 9000
871 IF D2=16 THEN LC=SC+J2:P(1)=0:B=B-1:MUSIC "/4":GOSUB 9000
880 IF D2=18 THEN POKE LC,10
900 NEXT I
910 GOTO 500
1000 END
2100 FOR I=1 TO 10:Z1=1:Z1=0:NEXT I:RETURN
2500 FOR I=1 TO 100:D=D+KEY(1):IF D=144 THEN I=100
2501 NEXT I
2502 POKE 40960,2:POKE 40961,0
2503 PRINT " "
2504 RETURN
9000 POKE LC-1,35:POKE LC+1,35:POKE LC-32,35:POKE LC+32,35:MUSIC "/1/2/3,4"
:POKE LC-1,128:POKE LC+1,128:POKE LC-32,128:POKE LC+32,128
9010 POKE LC,128:POKE SC+YU,25:RETURN

```

Reging Robots (continued)

```

9200 POKE 44,128
9205 POKE 80*YU,128; POKE 40*YN,47; POKE 80*YN,1,0; POKE 80*YN+1,22; POKE 80*
N-32,30; POKE 80*YN+32,47
9206 MUSIC "710/10/10"
9210 POKE 40960,2; POKE 40961,0; PRINT "TRIVLY A FILE";POKE80*
9215 POKE 40960,2; POKE 40961,0; PRINT "HEHE";YS; POKE80*Y;P;
9220 CALL 17046; PRINT "HIT 0 TO GET A REAL GOOD GAME"; GOSUB 2500
9245 TD=50; GOSUB 2100
9250 IF D$="0" THEN CALL 17046; GOTO 9400
9300 B=24;M=12; GOTO 210
9400 FOR I=1 TO 20;R(I)=0;P(I)=0; NEXT I
9410 GOTO 255
9999 END

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SQUAREROOT
.....from 19FF 811MSUR

```

10 POKE 24576,38
15 A=0
20 INPUT "PICK A NUMBER",N
30 A=(N/A)+A/2
40 IF B=A THEN PRINT : PRINT "SQUAREROOT OF ";N; IS ";A; PRINT : GOTO 10
50 B=A
55 GOTO 30

```

EXPERIMENTAL MATH
.....from ARTHUR WIRTH OF CANADA

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5 FOR P=0 TO 15: PRINT : NEXT
10 PRINT : INPUT "1 SPACE 2 LOG 3 E^X 4 TRIG 5 APL SIN & ARC (6
N".0: ON D GOTO 30,40,70,100,140,160,9999
30 A=PEEK (41009)*256+PEEK (41010)-41926;F=4V151+PEEK (41008)*256+PEEK (4
1010); PRINT : PRINT "SPACE USED=";A;"SPACE LEFT=";F
35 GOSUB 10
40 PRINT : INPUT "THE NAT LOG OF X=260 =",X;P=X;Y=0;A=.47
45 X=X/1.6;Y=Y+. IF X=>1.6 THEN A=A+.47; IF X>=1.6 THEN 45
50 D=P/1.6^Y-1;D=D-D#D/2+D#D#3-D#D#D/4+D#D#D#D/5-D#D#D#D#D/6+D#D#D#D#D#D/
7-D#D#D#D#D#D#D/8+D#D#D#D#D#D#D#D/9
55 X=D+A; PRINT : PRINT "LN ";P; " = ";X; PRINT
57 L=X#.4243; PRINT "THE COM LOG OF ";P; " = ";L; PRINT
60 GOSUB 10
70 PRINT : INPUT "THE -3 X< 5.55 FOR E^X =",X; PRINT

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Run For Your Life (continued)

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80 PRINT "AS YOU MOVE YOUR DRAWN LINE, WHICH AS YOU MOVE YOU CANNOT TOUCH."
90 PRINT "TOUCHING YOUR LINE OR AN OBSTACLE CAUSES DESTRUCTION!"
95 PRINT "GOOD LUCK!"
100 FOR B=1 TO 2000: NEXT B
105 CALL 17046
110 DIM A$(1)
120 X=51:Y=0
130 B=0
140 X1=INT (1-Os2=0
150 X1= INT ( RND (1)*21)
160 Y1= INT ( RND (1)*15)
170 IF X1=X THEN 190
180 GOTO 200
190 IF Y1=Y THEN 140
200 Z= INT ( RND (1)*255)
210 P=S12+Y1*32+X1
220 FOR E=1,Z
230 A$(E)=KEY$(2)
240 IF A$="N" THEN 290
250 IF A$="S" THEN 300
260 IF A$="E" THEN 310
270 IF A$="W" THEN 320
280 GOTO 130
290 Y=Y-1: GOTO 330
300 Y=Y+1: GOTO 330
310 X=X+1: GOTO 130
320 X=X-1
330 IF Y<1 THEN 470
340 IF X=0 THEN 470
350 IF Y>15 THEN 470
360 IF Y=0 THEN 470
370 IF PEEK (S12+Y*32+X)< 120 THEN 410
380 COLOR =4: SHAPE =15
390 S=S+5
400 PLOT Y,Y: GOTO 140
410 PRINT "SORRY, YOU HAVE BEEN DESTROYED!": PRINT "YOUR SCORE IS ";S
420 IF S>S1 THEN S1=S
430 PRINT "HIGH SCORE IS ";S1
440 PRINT "PRESS FIRE BUTTON TO CONTINUE"
450 A$=KEY$(2): IF A$="" THEN 100
460 GOTO 450
470 IF A$="N" THEN Y=Y-1
480 IF A$="S" THEN Y=Y+1
490 IF A$="E" THEN X=X+1
500 IF A$="W" THEN X=X-1
510 GOTO 230
9990 IF A$="E" THEN X=X-1

```


SPELLING DUTOR (continued)

```

0 POKE 41009, PEEK (41984): POKE 41010, PEEK (41985) REM NEEDED FOR CHAINING
5 REM ***** TO LOAD WORDS*****
7 REM ***** ONTO TAPE *****
10 CALL 17046: DIM A$(26,15),N$(15),Z$(1),NULL$(30)
15 GOSUB 1000
20 POKE 40960,2: POKE 40961,0: INPUT "HOW MANY WORDS (MAX.=25).",W
25 PRINT : PRINT : INPUT " ARE THEY IN ORDER & ON TAPE",Z$: IF Z$="Y" GOTO 80
30 PRINT "PUSH PLAY & RECORD AND PLUG IN THE MIKE."
40 FOR L=1 TO W: PRINT "SAY WORD #";L;" CLEARLY INTO MIKE."
50 CALL 34040: PRINT : PRINT : PRINT "PRESS 'SPACE' AFTER SAYING EACH WORD."
60 IF KEY$ (0)<>" " GOTO 60
70 CALL 34061: NEXT L: PRINT : PRINT : PRINT TAB (14);"DONE!": PRINT : PRINT :
PRINT
80 PRINT "NOW LOAD MEMORY WITH WORDS!": INPUT "PRESS 'RETURN' WHEN READY",Z$
90 POKE 24578,54: REM TO TURN TAPE DRIVE OFF
100 FOR I=1 TO W: CALL 17046: POKE 40960,2: POKE 40961,0
110 PRINT "WHAT'S WORD #";I;" PLEASE": INPUT A$(I,15): NEXT I
200 REM ***** QUIZ THE STUDENT*****
210 CALL 17046: POKE 40960,2: POKE 40961,0: M=0: DIM M$(26,15)
220 PRINT "BE SURE TO REMIND TAPE, THEN PRESS PLAY BUTTON.": CALL 34061
225 GOSUB 2000
230 PRINT : PRINT : PRINT TAB (6);"PLEASE TELL ME YOUR NAME.": INPUT N$
240 PRINT "OK ";N$:" , LISTEN TO THESE WORDS & SEE IF YOU CAN SPELL THEM."
250 FOR P=1 TO W
255 INPUT "ARE YOU READY? (Y/N)",Z$: IN=0
260 IF Z$="Y" CALL 34040: FOR X=1 TO 1600: NEXT X: POKE 24578,54: CALL 34061: G
OTO 280
270 PRINT "I WILL GO ON ONLY WHEN YOU SAY 'YES'.": GOTO 285
280 PRINT "?:P? "?: INPUT W$(P,15): IN=IN+1
290 IF W$(P,15)<>A$(P,15) THEN M=M+1: PRINT "SORRY ";N$:" , THAT'S NOT IT."
295 IF W$(P,15)=A$(P,15) THEN R=R+1: PRINT : PRINT "VERY GOOD ";N$:" NOW ANOTHE
R.": IN=0: NEXT P
300 IF IN=2 PRINT "CORRECT SPELLING IS ";A$(P,15): NEXT P
302 W$(P,15)=NULL$
305 IF P=M+1 THEN FOR X=1 TO 500: NEXT X: GOTO 320
310 IF IN=1 GOTO 280
320 REM ***** PRINT SCOREBOARD *****
330 CALL 17046: POKE 40960,2: POKE 40961,0
340 PRINT "*****": PRINT : PRINT
350 PRINT TAB (10);"SCOREBOARD": PRINT
360 PRINT TAB (5);"NUMBER CORRECT ";R: PRINT
370 PRINT TAB (5);"NUMBER WRONG ";W-R: PRINT
380 PRINT TAB (5);"PERCENTAGE = ";(R/W)*100;"%"
390 PRINT : PRINT : INPUT "WANT TO GO OVER THEM AGAIN",Z$
400 IF Z$="Y" THEN 200
410 FOR X=1 TO 8: PRINT : NEXT X: PRINT TAB (6);"HOPE THIS HELPED.": PRINT : P
RINT
420 FOR X=1 TO 5: PRINT : NEXT X
430 PRINT "RETURN TO DISK MENU (Y/N)!"

```

SPELLING TUTOR (Apple II, II+)

```

440 Z%= KEY$ (0)
450 IF Z%="" THEN 440
460 IF Z%="Y" THEN RUN " MENU "0
470 END
1000 PRINT TAB (0); "SPELLING TUTOR"; PRINT TAB (0); "-----"; PRINT
: PRINT
1010 PRINT " THIS PROGRAM WILL ENABLE"; PRINT "YOU TO HELP YOUR STUDENTS OR";
PRINT "CHILDREN PRACTICE THEIR"
1015 PRINT "SPELLING ASSIGNMENTS."; PRINT
1020 PRINT : PRINT "JUST FOLLOW THE SCREEN PROMPTS."; PRINT : INPUT " NOW, PRES
S 'RETURN' WHEN READY", Z%
1030 CALL 17046: RETURN
1100 PRINT " NOW BRING IN THE STUDENT OR"; PRINT "CHILD AND LET THE PRACTICE "
: PRINT "SESSION BEGIN."
2010 INPUT "PRESS 'RETURN' WHEN READY", Z%
2020 CALL 17046
2030 RETURN
2100 REM =====
2110 REM == SPELLING TUTOR ==
2120 REM == BY JIM ROLLANS ==
2130 REM == BON.BELLA MONTE ==
2140 REM ==PITTSBURG, CA94565==
2150 REM == REV.1.4 10/7/81==
2160 REM =====

```

PROFESSIONALLY CREATED PROGRAMS FOR THE APF IMAGINATION MACHINE

EXECUTIVE SOFTWARE AVAILABLE:

CONTROLLED LIST. Scroll back and forth through a BASIC program using the joystick. Make changes and resume scrolling. An ideal tool for debugging or modifying a program.

RENUMBER. Renumber an APF BASIC program, leaving 5 line intervals between statements to allow for modifications. NO IN-LINE CODE ALLOWED.

GRAPHICS HELPER. HI-RES programmers can now create shapes using the joystick. This program creates the codes necessary to build the design, displays it and allows modifications to any created shapes. The menu allows the programmer to list the codes generated for each shape in HEX and DEC and to display any designs on the screen.

BUT THE BEST PART is that it provides for the shapes created to be used in another BASIC program as a REMARK statement. A CALL routine is provided which relocates the shape table. The only coding needed to put HI-RES shapes on the screen is POKE Address, Shape. A MUST FOR THE SERIOUS HI-RES PROGRAMMER!

DISK-TO-TAPE BACKUP/RESTORE. Backup disks to tape and restore tape to disk. Eliminate the need for 2 disk units or a lot of manual switching of disks. Once started NO OPERATOR INTERVENTION is required. Start the program and take a break! LET THE COMPUTER DO THE WORK.

GAMES FOR THE APF:

APF-MAN. FINALLY an APF version of this most popular arcade game is available! The little muncher scurries around the screen trying to gobble up as many points as he can while being pursued by some very intelligent robots. Each new screen becomes more challenging as the robots pick up speed. A VERY GOOD HI-RES SIMULATION OF THE ARCADE GAME, complete with bonus points and energizers. The most REALISTIC game for the APF since SPACE INVADERS!

TREASURE HUNT. Accumulate as much treasure as possible as quickly as you can by maneuvering around the board with the joystick. Two players may pit their skills against each other or take on the computer in one of five skill levels. Each game is different so strategy is a must.

JIGSAW PUZZLES. Program builds jigsaw puzzles to be solved in as few moves as possible. Every puzzle is different. It's not as simple as you might think.

ART THIEF. A valuable painting has been stolen and you must determine who stole it and when. Question the suspects and deduce the solution. Be careful though because some people are forgetful and the thief, of course, might lie. LO-RES graphics game with 5 skill levels.

GRAPHICS HELPER \$ 15
RENUMBER \$
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TAPE/DISK BACKUP \$
SOFTWARE PACK \$5
(INCLUDES ALL OF ABOVE)

APF-MAN \$ 20
TREASURE HUNT \$
JIGSAW PUZZLES \$
ART THIEF \$
GAME PACK \$0
(INCLUDES ALL OF ABOVE)

SEND CHECK/MONEY ORDER TO: CARL A. ECHOLS
112 CREEKSIDE LANE
NOBLESVILLE, IN 46060

NAME-----

STREET-----

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Product Catalog and Price List

IN STOCK
SUPER SALE !!

COMPUTER PRODUCTS	JULY 15, 1982 January 5, 1982	LIST PRICE	SPECIAL DISCOUNT PRICE
23K APF IM-1 COMPUTER. Includes 14,000 Bytes ROM with BASIC built in, 9000 Bytes User RAM, Color, Sound. Professional 53 keyboard, Two controllers, Two 10 key numeric pads, High speed cassette, A. C. adapter, R. F. Modulator, T.V. switch box. Accepts TAPE-DISK-FILE in cartridges. It is plug in expandable. 90 days parts and labor warranty, Owners guide, BASIC language manual, Beautiful Black & White Console Case.		\$599.00	\$239.00
23K APF IM-1 COMPUTER FACTORY PACK. Everything you get for \$239.00 plus "BASIC TUTOR program" on two tape cassettes with manual to teach you how to cut programming time, "PROGRAMMING AND TECHNICAL ASSISTANCE MANUAL" for Graphics, Machine Language-Memory maps, Schematics and Parts List. Also you get the popular "SPACE DESTROYERS Program."	IN STOCK	698.00	289.00
BB-1 BUILDING BLOCK INTERFACE. This plug in interface allows you to use the 23K IM-1 computer to its fullest degree. It contains 4 universal ports to add: RAM memory, Printers, Telephone Modem, and Floppy Disk drives. (5.00 shipping)	IN STOCK	199.00	299.00 \$69.00
8K-RAM EXPANSION. Plug into interface port to increase your RAM memory 8192 bytes. (3.00 shipping)	IN STOCK	129.00	199.00 \$69.00
S1-232 SERIAL INTERFACE. Plug in to interface port to connect printers and telephone modems. (3.00 shipping)	IN STOCK	149.00	199.00 \$69.00
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TM-150 TELEPHONE MODEM. Best quality; Transmit receive full duplex, switches! Originate-off-answer. (4.00 shipping)	IN STOCK	199.00	249.00 \$149.00
FI-100 DISK INTERFACE. Plug into interface port - allows you to connect the floppy disk drive. (\$3.00 shipping)	IN STOCK	149.00	199.00 \$69.00
D-100 NINE FLOPPY DISK DRIVE. Plugs into interface - has its own power supply and controller - uses no RAM memory, give you 72,000 Bytes of additional data storage, plus instant loading and accessing of data. (7.50 shipping)	IN STOCK	599.00	699.00 \$349.00

PROGRAMMING AND LANGUAGE AIDS	ALL IN STOCK	SPECIAL FACTORY PRICE	SALE PRICE
BASIC TUTOR. This program includes two cassette tape programs with a 243 page manual - Teaches you how to use the simplified Level II BASIC cuts programming time - a must for beginners and professionals.		49.95 \$26.95	29.95
PROGRAMMING AND TECHNICAL ASSISTANCE MANUAL. 100 pages, graphics, memory maps, machine language, schematics, and parts list.		19.95 \$13.45	14.95
6800 MACHINE LANGUAGE EDITOR AND ASSEMBLER. This disk program is used to create source code file - this file is then used as the assembler - simplifies entry or editing, adding, deleting, change in lines, etc.		49.95 \$26.95	29.95
6800 MACHINE LANGUAGE DISASSEMBLER. This disk enhances creation, debugging, and recording of machine language.		19.95 \$13.45	14.95
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UNTIL 12-31-82

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		PRICE	PRICE
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<u>BUDGET MANAGER</u> Day by day, week by week, 3 categories, including food, medical, automotive - even summary reports.		24.95 13.45	14.95
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<u>BILLBOARD</u> Great for creating messages in sound, color, and graphics with a beautiful display.		24.95 13.45	14.95
<u>SPACE SIZE AND SURFACE GUIDE</u> Great for home improvements, figure your material needs - How much Paint - Carpeting - Fertilizer, etc.		24.95 17.95	19.95
<u>MATH TUTOR</u> Great for improving math skills at any age level, based on personal ability - a private tutor with lots of fun.		24.95 17.95	19.95
<u>THE WORD FACTORY</u> A spelling game that's fun - spell name of object pictured - great to improve your kids spelling skill and adult too!		24.95 17.95	14.95
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<u>WARRANTY - 90 DAYS PARTS AND LABOR</u> If unit fails within 90 days of purchase, send unit and sales receipt prepaid via United Parcel Service to PROTEGO ENTERPRISES at address shown. We will ship you a replacement unit within 48 hours of receipt prepaid.			
<u>SERVICE MANUAL</u> Detailed service instructions and pictures for those who want to service their computers.			
NOT AVAILABLE			

PROGRAMS FOR FUN

AND LEARNING

FOR APP COMPUTERS.

TIC TAC KNOW

- #101 8 K VERSION - Two players take turns trying to claim the boxes on a tic-tac-toe game board. The boxes are won by correctly answering questions. Input is via the game controllers. There are 9 topics with 4 questions on each topic.
\$8.00
- #102 16 K VERSION - The game board is the same as the 8K version except that a blue and red square is used to mark the boxes. Also, there are a total of 81 questions; 9 topics with 9 questions each. This version has the ability to recognize when someone has won. It then ends the game and states who won.
\$12.00

TIME MACHINE

- #103 16 K - This is a fun way to learn history. The game is for 2, 3 or 4 players. At the onset of the game you enter the number of rounds to be played and the level of difficulty for each player. You also decide whether or not to have the correct answer shown. Computer keeps score and keeps track of the turns. Players use game controllers.
\$12.00

MATH TIME

- #104 8 K - Ever have trouble reading numbers on the screen ??? Well, all of the numbers in this program are in large, colorful graphics. With this program you can practice addition, subtraction, multiplication, division, times tables, and a mixture of operations. The computer keeps track of your score and amount of time needed. Try to increase your speed and accuracy.
\$8.00

STAR BATTLE

- #105 8 K - One player at the keyboard. Sorry, no graphics. You have to find and destroy the enemy space ship. You have a limited amount of fuel. Be careful, the enemy will occasionally shoot at you and he may also change his position.
\$5.00

MONEY

- #106 8 K - This program is designed to help children to learn how to add up money and make change. The child is told the amount of money he has and then is given the chance to spend it and compute his change.
\$5.00

SYMBOLS

- #107 8 K - This program is for anyone interested in science or planning a career in science. The program will help a person to learn the symbols and names of 25 common chemical elements. Symbols are displayed as large, colorful low-resolution characters.
\$8.00

CODE PRACTICE

- #108 8 K - Learn and practice morse code. Allows you to practice random letters or groups of letters. Good for those interested in radio electronics.
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THE ULTIMATE STRATEGIC SPACE BATTLE!

SEEK OUT AND DESTROY THE FLEET OF KLINGON WARSHIPS WHICH THREATEN THE GALAXY IN A RACE AGAINST "TIME", AS YOU COMMAND YOUR STARSHIP'S:

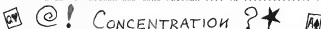
WARP ENGINES
SHORT RANGE SCANNERS
LONG RANGE SCANNERS
PHASERS
PHOTON TORPEDOS
ENERGY/SHIELDS
DAMAGES

ON-BOARD COMPUTER (STATUS, TORPEDO COURSE,
STARBASE LOCATIONS, GALACTIC MAP,
MEMORY OF PREVIOUS LONG RANGE SCANS).



SHORT RANGE SCAN GIVES SEMI-GRAPHICS DISPLAY OF YOUR STARSHIP'S LOCATION AND ALL STARS, KLINGONS AND STARBASES WITHIN YOUR PRESENT QUADRANT. STAR TREX IS NOT AN "ARCADE" GAME, RATHER AN EXCITING GAME OF SKILL AND STRATEGY. REMEMBER TO KEEP YOUR SHIELDS UP, AS THE KLINGONS' PHASERS CAN DAMAGE ANY PART OF YOUR STARSHIP WITH SURPRISING SPECIAL EFFECTS!

STAR TREX INTRO PROGRAM AND GAME PROGRAM 8K \$12.95



NO MORE LOST OR BENT CARDS! LET YOUR IMAGINATION MACHINE SHUFFLE AND DEAL OUT THE 52 CARD DECK AS YOU AND YOUR OPPONENT USE THE JOYSTICK/CONTROLLERS TO TRY AND SELECT PAIRS. LEFT AND RIGHT SCORES ARE ALSO DISPLAYED ON THE SCREEN IN THIS HI-RES GAME.



HEAD-HUNTER



YOUR COMPUTER KEEPS SCORE AS 2 PLAYERS USE THE JOYSTICK/CONTROLLERS TO EVADE, PURSUE AND SHOOT THE HEADS IN THIS FAST-ACTION, HI-RES GAME. WATCH OUT, THERE'S ONE BEHIND YOU!

CONCENTRATION AND HEAD-HUNTER (BOTH) 8K \$ 9.95



MINOTAUR



ENTER THE MINOTAUR'S CASTLE, DESTROY IT AND CLAIM IT'S TREASURES IN THIS ADVENTURE GAME. (NO GRAPHICS).

MINOTAUR 8K FREE WITH PURCHASE OF BOTH TAPES!

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ALL 4 FOR \$22.90!

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GREAT NEWS FROM PROTECTO

~~June 1, 1982~~
JULY 15, 1982

WE ARE BACK IN STOCK!

- A. 23K APK IM-1 Computers In Stock!
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- C. 8K RAM Expanders! In Stock!
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GREAT NEWS FROM PROTECTO!!

BIG SUPER SALE!

- A. All owners can buy at ^{SALE} ~~Club~~ Prices!"
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- C. ^{ALL OWNERS!} ~~"Club Members"~~ get Special Hardware prices!
- D. "Club Membership is reduced to \$10.00 ^{JULY 15, 1982} ~~June 1, 82~~ through 12-31-82- If you join NOW! you get Club Prices on this sale!!

GREAT NEWS FROM PROTECTO!!

BIG BONUS DEAL!

- A. \$20.00 merchandise Bonus to any APF Computer owner who refers a buyer for a 23K APK IM-1 Computer!
- B. Any "Club Member" can buy a 23K APF IM-1 Computer for \$219.00 or \$269.00 (factory pack)
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DON'T MISS THIS SALE — PRICES WILL NEVER BE LOWER!

NOW IS THE TIME TO COMPLETE YOUR LIBRARY ON ALL TAPES AND CARTRIDGES!!

APF**APF APF**

IM-1

THE IMAGINATION MACHINE (IM-1)

Exciting, personal, home computer for home management, entertainment and education. User-programmable in BASIC or uses APF software cassette programs. Features 9K RAM, 14K ROM, 53-key keyboard, 32 characters x 16 line screen format, alpha numerics in up to 8 colors. Built-in sound synthesizer, built-in tape deck, 2 game-style hand held controllers. **\$239⁹⁵**

TELEPHONE MODEM (TM-150)

The APF modem (modulator/demodulator) allows you to hook up the computer to a remote terminal over telephone lines and access time-sharing services or trade programs with a compatible computer. **\$119⁹⁵**

THE BUILDING BLOCK (BB-1)

This expansion device lets you use your APF Imagination Machine to its fullest degree. Easily plugged into the machine and requiring no additional power supply, it contains four universally adaptable ports for peripheral drive cartridges.

For example, a cartridge, enabling hookup to any stand-alone printer or telephone modem. Ports can also hold cartridges for 8K RAM memory and mini-floppy disk drive. **\$69⁹⁵**

D-100



\$349⁰⁰
SINGLE DISK!

MINI-FLOPPY DISK DRIVE (D-100)

Each APF mini-floppy disk drive gives you 72,000 bytes of additional storage capacity plus loading and accessing of data within seconds. Industry standard mini-floppy connections.



PRINTER

\$459⁹⁵

The EPSON MX

The MX-80, shown above, is an 80-column bidirectional printer featuring the full 96-character ASCII set with descenders for easier reading, and offers a user-defined choice of 40, 66, 80 or 132 columns.

One of the biggest breakthroughs offered by the MX-80 is the world's first disposable print head. After its 50-million-character life expectancy, you simply buy a new one for under \$30 and replace it yourself in seconds.

DIRECT CONNECT **\$99⁹⁵**

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(FACTORY - DIRECT RELIABILITY)

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Page 1283